

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the subject application:

1. (Currently Amended): A fusion protein, comprising a thrombolytic protein, an anticoagulant protein, and a cleavable linker peptide recognized by blood coagulation factor.
2. (Currently Amended): The fusion protein of claim 1, wherein said thrombolytic protein is selected from the group comprising staphylokinase(SAK), tissue-type plasminogen activator(t-PA), streptokinase(SK), urokinase(UK), urokinase-like plasminogen activator(u-PA), ~~venom~~ and mutants thereof which activates other ~~hemolytic~~ thrombolytic factors or have thrombolytic activity *per se*.
3. (Original): The fusion protein of claim 2, wherein said thrombolytic protein is staphylokinase or mutants thereof.
4. (Currently Amended): The fusion protein of claim 1, wherein said anticoagulant protein is selected from the group comprising hirudin, antithrombin III, ~~venom~~ and mutants thereof.
5. (Original): The fusion protein of claim 4, wherein said anticoagulant protein is hirudin or mutants thereof.
6. (Canceled)
7. (Currently Amended): The fusion protein of claim ~~6~~ 1, wherein said linker peptide is amino acid sequence IEGR (SEQ ID NO: 3), which can be recognized by blood coagulation factor FXa₁ or a

peptide containing IEGR.

8. (Currently Amended): The fusion protein of claim ~~6~~ 1, wherein said linker peptide is an amino acid sequence LGPR (SEQ ID NO: 4), which can be recognized by blood coagulation factor FIIa (thrombin), or a peptide containing LGPR (LeuGlyProArg) (SEQ ID NO: 4).
9. (Currently Amended): The fusion protein of claim 1, wherein said fusion protein is a fusion protein (SAK-GSIEGR-HV2) of staphylokinase and hirudin linked by linker peptide GSIEGR (SEQ ID NO: 5), a fusion protein (tPA-PRIEGR-HV2) of tissue-type plasminogen activator (t-PA) and hirudin linked by linker peptide PRIEGR (SEQ ID NO: 6), or a fusion protein (SAK-GSLGPR-HV2) of staphylokinase and hirudin linked by linker peptide GSLGPR (SEQ ID NO: 7).
10. (Currently Amended): ~~The fusion protein of claim 1~~ A fusion protein, comprising a thrombolytic protein, an anticoagulant protein, and a linker peptide, wherein said fusion protein is a fusion protein (SAK-GSIEGR-HV2, or SFH) of staphylokinase and hirudin linked by linker peptide GSIEGR (SEQ ID NO: 5).
11. (Currently Amended): A method for preparation of a fusion protein comprising a thrombolytic protein and an anticoagulant protein, wherein said method comprises linking the thrombolytic protein gene and the anticoagulant protein gene together via a cleavable sequence encoding IEGR- (SEQ ID NO: 3) or LGRPLGPR- (SEQ ID NO: 4) containing peptide so as to form the fusion protein gene, and then expressing said fusion protein gene in *E. coli*, yeast or animal cells to produce said fusion protein.
12. (Currently Amended): A pharmaceutical composition comprising a

Applicants: Bingxing Shi et al.
U.S. Serial No.: 10/526,682
Filed: March 2, 2005
Page 7

the fusion protein of claim 1 and a pharmaceutically acceptable carrier or excipient.

13. (Canceled)

14. (Canceled)

15. (Currently Amended): A method for the treatment of a disease or condition associated with thrombosis, comprising administering a therapeutically effective amount of the fusion protein of claim 1 to the patients suffering from thrombosis.